AI's Sustainability Ripple Effect: The Hidden Impact of AI on Water Use

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Body

NORTHAMPTON, MA / ACCESSWIRE / December 19, 2023 / Long before technologies like ChatGPT and Midjourney exploded onto the scene, artificial intelligence (AI) was already an integral part of our daily work. From predictive analytics to process automation, AI's capabilities have reshaped the business world, taking on a host of labor-intensive, repetitive tasks and freeing up workers for higher-level innovation.

As much as both workers and industry benefit from AI's expanding reach, it's essential to consider its wider implications, particularly its environmental impact on water resources.

The Water-Intensive Reality of AI

While the benefits of AI are undeniable, there's a significant downside that demands attention - its water consumption.

New research has highlighted the extensive water usage associated with training and deploying AI models within data centers. A study conducted by the University of California, Riverside, and the University of Texas, Arlington revealed astonishing figures: Training GPT-3 in a state-of-the-art US data center could directly consume 700,000 liters of clean freshwater - an amount equivalent to that used for the manufacture of 370 BMW cars or 320 Tesla electric vehicles. Even seemingly minor AI interactions, such as a simple ChatGPT conversation, come with a water footprint, and with millions of users worldwide, this adds up.

The trickle-down effect of AI water usage

Environmental concerns extend beyond AI's immediate users. In 2021 alone, Google's US data centers were projected to consume billions of liters of fresh water for cooling purposes. This exponential growth in AI coincides with a looming global water crisis, with over half of the world's population predicted to face severe water stress by 2030. The urgency to address AI's role in water shortages is evident, especially as these tech giants strive to achieve "water positive" status by 2030, committing to replenishing more water than they consume.

Assessing AI Sustainability

A proactive approach that aligns AI initiatives with environmental stewardship can reinforce your organization's sustainability commitments and safeguard your ESG rating. Achieving this alignment requires an ethical and functional assessment of your water practices.

Key questions to consider

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AI can be leveraged in many ways within the workplace from automating tasks to processing data to running chatbots and more, it's your responsibility as a business leader to understand the environmental implications of using AI. The following questions are a good starting point for gaining clarity about your implementation of AI and its impact on water.

Are there alternatives to water cooling that we may want to explore?

How does the integration of AI align with our organization's broader sustainability and environmental goals?

Are our AI initiatives consistent with our commitment to responsible resource management and reduced ecological impact?

Are we accounting for both direct and indirect water consumption across the AI lifecycle, including training, inference, and data center operations?

Have we explored and considered AI technologies that exhibit lower water consumption without compromising performance?

Have we evaluated the risk of exacerbating water scarcity issues in regions where our AI technologies will be deployed?

How can we strike a balance between optimizing carbon efficiency and minimizing water consumption?

Download our Water Risk Assessment Methodology to learn more.

Indirect water impact

Water is a shared resource and the impacts of using AI extend beyond the four walls of your business operations. To account for your organization's AI use, a comprehensive assessment should be conducted. This assessment involves a multifaceted evaluation of how AI implementation interacts with existing water systems and availability. Here are key steps to consider.

Water footprint analysis: Conduct a comprehensive analysis to quantify the water footprint associated with various AI processes and technologies. This analysis should encompass the entire lifecycle of AI deployment, from data center operations to energy consumption.

Scenario modeling: Create models that simulate the potential effects of increased AI implementation on water usage and availability in different scenarios. This involves considering factors such as the scale of AI deployment, geographical location, and the status of the local water supply.

Regional water assessment: Collaborate with local water management authorities and experts to understand the existing water challenges in the regions where AI technologies are being deployed. This partnership can provide valuable insights into potential conflicts or synergies between AI deployment and water availability.

Life cycle analysis: Consider the entire life cycle of AI technologies, from raw material extraction for hardware production to end-of-life disposal. Analyze how each phase of the life cycle contributes to indirect water consumption.

Risk evaluation: Identify potential risks associated with increased AI implementation, such as the exacerbation of water scarcity issues or conflicts with other water-intensive industries. Evaluate the likelihood and severity of these risks to inform decision-making.

Committing to Sustainable AI

AI clearly isn't going anywhere, and it can be a valuable tool that will change the way we work. As a responsible business leader, it's up to you to find the most sustainable approach to adding AI to your suite of business

technology. To ensure that your AI investment promotes sustainable water use practices, consider the following steps.

Evaluate AI solutions: Before implementing AI technologies, assess their water footprint. Choose solutions that demonstrate efficient water usage and prioritize vendors committed to sustainable practices.

Water-aware AI features: Opt for AI models and technologies that offer features for optimizing water consumption. Look for options that allow scheduling AI tasks during water-efficient hours or locations.

Data center considerations: If applicable, partner with data centers that prioritize water-efficient cooling methods and employ renewable energy sources to power AI processes.

Read: Saving Water from the Digital Cloud: the Water-Energy Nexus in Data Centers

Monitor and optimize: Implement real-time monitoring of AI processes' water consumption. Use data-driven insights to identify areas for optimization and minimize water waste.

Transparent reporting: Include water consumption data in your organization's sustainability reports. Transparency demonstrates a commitment to responsible AI adoption and encourages accountability.

Educational initiatives: Raise awareness within your organization about the importance of sustainable AI adoption. Provide training and resources that empower decision-makers to make environmentally conscious choices.

Lobby for change: Advocate for industry-wide standards and regulations that promote water-conscious AI adoption. Participate in discussions with regulatory bodies to influence policies that incentivize sustainable practices.

Legislative Action Encouraging Sustainable AI

In recognition of AI's potential contribution to water shortages, governments and regulatory bodies are taking steps to ensure that technological progress aligns with sustainable practices.

Several jurisdictions have begun considering the water consumption of AI technologies as part of their legislative agendas. For instance, in regions where data centers are concentrated, legislators are recognizing the significant water usage associated with AI operations.

Proposed legislation in areas such as Virginia requires thorough assessments of the environmental impact of data centers, including their water usage, carbon emissions, and impacts on agriculture. These initiatives highlight a growing awareness of the need to integrate environmental considerations into the development and deployment of AI solutions.

Read: ESG Considerations for Data Centers: Leading the Way to a Sustainable Digital Future

Sustainability consulting for ethical AI integration

Organizations can play a pivotal role in mitigating AI's impact on water resources by proactively seeking the guidance of experts and making a commitment to responsible technology integration.

For companies committed to corporate responsibility, sustainability consulting provides a clear path forward. Engaging with experts well-versed in the intricacies of AI's environmental impact helps organizations integrate technology while upholding ethical and sustainable practices.

Discover how Antea Group's sustainability consulting services can help you align your AI initiatives with global water conservation efforts.

About Antea Group

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Antea®Group is an environment, health, safety, and sustainability consulting firm. By combining strategic thinking with technical expertise, we do more than effectively solve client challenges; we deliver sustainable results for a better future. We work in partnership with and advise many of the world's most sustainable companies to address ESG-business challenges in a way that fits their pace and unique objectives. Our consultants equip organizations to better understand threats, capture opportunities and find their position of strength. Lastly, we maintain a global perspective on ESG issues through not only our work with multinational clients, but also through our sister organizations in Europe, Asia, and Latin America and as a founding member of the Inogen Alliance. Learn more at us.anteagroup.com.

View additional multimedia and more ESG storytelling from Antea Group on 3blmedia.com.

Contact Info:

Spokesperson: Antea Group

Website: https://www.3blmedia.com/profiles/antea-group

Email: info@3blmedia.com

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